

REMARKS/ARGUMENTS

35 U.S.C. §1112

The Office rejected Claims 24 and 25 for failing to comply with the written description requirement. It appears that the Office is of the opinion that the original specification does not disclose any embodiment wherein SiCl₄ may be converted to HSiCl₃ in the minimum amounts recited in Claims 24 and 25. Applicants draw the Office's attention to page 2, lines 24-26 of the specification.

Thus, conversion into HSiCl₃ in the vicinity of the thermodynamic conversion can advantageously be obtained according to the invention when an SiCl₄/H₂ mixture is passed over the heated elements of a resistance heating device.

As demonstrated by the above-quoted disclosure, the original specification explicitly discloses that SiCl₄ is converted into HSiCl₃. Applicants submit that those of ordinary skill in the art would readily understand that this disclosure encompasses and at least implicitly describes complete conversion of SiCl₄ to HSiCl₃. Therefore, the amounts of SiCl₄ conversion recited in Claims 24 and 25 are described in the original specification such that one of ordinary skill in the art would readily recognize that Applicants were in possession of the claimed subject matter at the time the original application was filed.

The Office objected to Claim 18 for failing to limit the subject matter of a previous claim. In the paragraph bridging pages 2 and 3 of the June 10, 2009 Office Action, the Office puts forth an argument that this claim cannot further limit Claim 1 which is a process of producing HSiCl₃ because Claim 18 describes a process of using HSiCl₃. Applicants submit that the Office's assertion has no basis in law or fact. It is incontrovertible that Claim 18 further limits the process of Claim 1 by requiring further active steps that are not recited in Claim 18.

Applicants request withdrawal of the Office's objection to Claim 18.

35 U.S.C. §103

The Amendment filed in the present case on March 12, 2009 included new dependent Claim 27 which requires the formation of a product mixture comprising HSiCl₃ and HCl. On pages 9 and 10 of the March 12, 2009 Amendment it is argued that JP '017 describes a process that is different from that of Claim 27. In particular, it is shown that the JP '017 process does not form a product mixture comprising HCl for the reason that the JP '017 process reacts any HCl present during the reaction with a fixed metallic Si bed to convert the HCl to HSiCl₃.

The Office responded to this argument by stating that the JP '017 reference "inherently produces HCl". The Office misses the point. The product mixture obtained from the JP '017 process does not contain HCl because HCl is reacted with metallic Si to form HSiCl₃. Thus, while HCl may be produced in the JP '017 process and may exist transiently in the JP '017 process, it is not present in the product mixture isolated from the process because the HCl has been converted into HSiCl₃. Thus the JP '017 does not form a product mixture comprising HCl.

Applicants thus submit that the subject matter of Claim 27 is further patentable over the reference of record.

Likewise for Claim 28, the JP '017 reference fails to disclose or suggest a process in which a mixture comprising HCl and HSiCl₃ is subjected to fractionation or at least partial condensation. As explained above, any HCl formed in the JP '017 process is reacted with metallic Si to form HSiCl₃. Thus, the JP '017 reference does not disclose or suggest a process in which a mixture that comprises both HCl and HSiCl₃ is subjected to fractionation and/or partial condensation.

On pages 10 and 11 of the June 10, 2009 Office Action, the Office appears to be urging an interpretation of JP '017 which makes no sense. The Office takes the position that

it would be obvious to eliminate certain steps and/or functions from the JP ‘017 process to arrive at a process in which HCl is not removed. The English Abstract of JP ‘017 describes the JP ‘017 process as follows (emphasis added):

The resulting mixed gas of H₂, SiCl₄ and SiHCl₃ is taken out of the exhaust port 7, and the SiHCl₃ is separated and collected.
Since HCl is not contained, an HCl separator is unnecessary,
and HCl is converted into SiHCl₃ by a reaction with Si to increase the production of SiHCl₃.

The Office’s assertion that the product mixture of the JP ‘017 process contains HCl is not in agreement with the explicit disclosure of the English abstract of JP ‘017.

Moreover, it makes no sense to eliminate the step of reacting HCl with Si metal from the JP ‘017 process. The English Abstract of JP ‘017 explicitly describes HCl as “harmful.” The entire purpose and function of the JP ‘017 process is to form HSiCl₃ that is free of HCl. The Office’s assertion that it would be obvious to eliminate the function of the JP ‘017 process by which HCl is reacted with Si to remove the HCl is incorrect as a matter of law.

Applicants draw the Office’s attention to M.P.E.P. §2143.01(V). The M.P.E.P. makes it clear that it is legally incorrect to assert that it would be obvious to modify a process in a manner that makes the process unsatisfactory for its intended purpose. It is explicit from the English abstract of JP ‘017 that the purpose of the JP ‘017 process is to form HSiCl₃ that is free from harmful HCl. Eliminating this step and/or function from the JP ‘017 process is contravenes its intended purpose. Thus the Office’s basis for rejecting the claims is further not correct.

Claim 29 of the March 12, 2009 Amendment is drawn to a process wherein HSiCl₃ formed in the process “consists of HSiCl₃ formed by catalytically hydrodehalogenating the silicon tetrachloride.” The Office again asserts that this process is obvious over JP ‘017 because it would be obvious to delete the step of converting HCl to HSiCl₃ from the JP ‘017

process. As explained above, such a modification of the JP '017 process is directly contradictory to the explicit disclosure of the English Abstract of JP '017.

Claim 29 is therefore further patentable over the art of record.

Applicants' March 12, 2009 Amendment also pointed out that the combination of Yamanaka with Rogers is improper because Yamanaka discloses a process where Si metal is formed, e.g., deposited on a substrate, whereas Rogers discloses that the formation of Si metal should be prevented. The Office responded by stating that Rogers' process is reversible and thus it would have been obvious to control the Rogers process without depositing Si. The Office fails to appreciate that this is exactly the point which proves that the combination of Yamanaka and Rogers is not appropriate. Rogers teaches that Si metal should *not* be formed whereas Yamanaka *requires* the formation of Si metal.

The rejection in view of the combination of Yamanaka with Rogers should therefore be withdrawn.

For the reasons discussed above in detail, Applicants submit that the rejections are not supportable and should be withdrawn.

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